Attorney's Docket: 2003DE412
Serial No.: 10/783,189
Art Unit 1764
Response to Office Action mailed 03/22/2007

REMARKS

The Office Action mailed March 22, 2007 has been carefully considered together with each of the references cited therein. The amendments and remarks presented herein are believed to be fully responsive to the Office Action. Reconsideration of the present Application in view of the following remarks is respectfully requested.

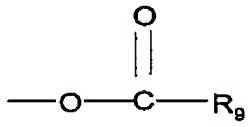
Claims 1-11 were rejected under 35 U.S.C. §103(a) as being unpatentable over Klomp et al. (USP 6,214,091). Klomp discloses a method for inhibiting the plugging of a conduit for the transport of hydrocarbon fluids by gas hydrates wherein use is made of a hydrate formation inhibitor component of formula (1):

$$(R^1)R^2)(R^3)(R^4)A^+Y^- \qquad (1)$$

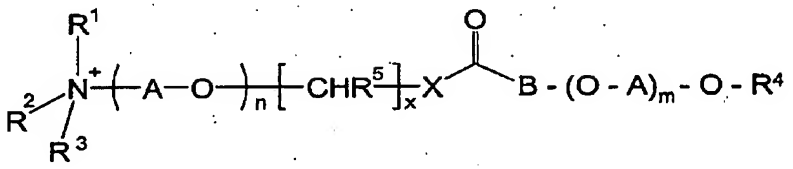
wherein two of R^1-R^4 are independently normal or branched alkyls having 4 or 5 carbon atoms, two of R^1-R^4 are independently representing organic moieties having at least 8 carbon atoms, A represents a nitrogen or a phosphorus atom, and Y^- represents an anion, wherein one of the R^1-R^4 represents a moiety:

$$-(CH_2\text{-}CHR_5\text{-}O)_p\text{-}(CH_2)_q\text{-}(CHR_6\text{-}CH_2)_r\text{-}CH_2\text{-}CHR_7)_s\text{-}(CHR_8)_t\text{-}O\text{-}C(O)\text{-}R_9$$

wherein p represents 0 or an integer of up to 50; q, r, s, and t are 0, 1, 2 and together are at least 1. According to Klomp, (see col. 2, lines 10-34) R_9 is selected from cycloalkyl, alkenyl, aryl, arylalkyl, arylalkenyl, alkaylaryl, or alkenylaryl groups. Thus, the alkylene-alkoxy chain recited in col. 2 of Klomp terminates in the following group which does not include any hetero atoms.

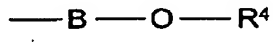


Applicant discloses a method for inhibiting gas hydrate formation employing a compound of the formula:



(1)

wherein R^4 is a C_1- to C_{50}-alkyl, C_2- to C_{50}-alkenyl radical, C_6- to C_{50}-aryl or C_7- to C_{50}-alkylaryl. Thus R^4 is a pure hydrocarbon residue and the following partial formula:



Thus, even when m equals 0 in Applicant's formula (1), the carboxylic acid group cannot carry a pure hydrocarbon residue, but always carries an ether group. Applicant's ether group differs from the pure hydrocarbon group R_8 of Klomp in that Applicant's terminal ether group is a polar group. Polarity of a terminal group is an important factor in gas hydrate inhibitors. To assume that a physical property of a polymer such as gas hydrate inhibiting activity is predictable by virtue of the inclusion of a single particular monomer or terminal group is not based on fact. It is common general knowledge that the behavior and the properties of polymers are different from the properties of the monomers which are used to form the polymers. Simple examples are monomers such as ethylene, vinyl acetate, or styrene which as polymers do not resemble their monomers in any manner. There is no motivation or suggestion to anyone skilled in the art to modify the pure hydrocarbon terminal group of Klomp to arrive at Applicant's polar ether terminal group. Applicant's compound having a polar ether terminal group is not altered by the selection of an anion. Therefore, the rejection of claims 1-11 under 35 U.S.C. §103(a) as being unpatentable over Klomp et al. (USP 6,214,091) should be withdrawn for the reason that no one skilled in the art would find any motivation in Klomp to modify the terminal group of Klomps compound with any expectation of success in inhibiting gas hydrate formation.

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It is respectfully submitted that, in view of the above remarks, the rejections under §103 should be withdrawn and that this application is in a condition for an allowance of all pending claims. Accordingly, favorable reconsideration and an allowance of all pending claims are courteously solicited.

An early and favorable action is courteously solicited.

Respectfully submitted,

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